

AMENDED CLAIMS

[received by the International Bureau on 25 July 2000 (25.07.00);
original claims 1,6,9 and 18 amended ; new claims 22-24 added;
remaining claims unchanged (7 pages)]

1. A method for filling a natural hollow elongated casing with a meat emulsion, comprising, placing a natural casing on an elongated meat emulsion stuffing tube having a meat emulsion discharge end, closing an extended end of the natural casing over the
5 discharge end of the stuffing tube so that meat emulsion exiting the discharge end will push the natural casing longitudinally by pumping meat emulsion through the stuffing tube for expansive discharge into the natural casing at a sufficient volume and velocity to provide the primary energy within the natural casing to move the natural casing forwardly off of the discharge end of the stuffing tube, slidably mounting a thrust collar on the stuffing tube
10 behind the natural casing, and intermittently pushing the thrust collar against the casing insufficiently to create squeezing or compression pressure thereon but to facilitate the normal forward movement of the casing on the stuffing tube beyond the normal movement of the casing caused by the energy of the emulsion entering the casing.
- 15 2. The method of claim 1 wherein water is applied to the natural casing before placing the casing on the stuffing tube to make the casing hydrated, soft, pliable and slippery to prevent adhesion of the casing to the stuffing tube.
- 20 3. The method of claim 1 wherein the forward end of the stuffing tube extends through a hollow chuck, placing a resilient brake element in the chuck around the stuffing tube to yieldingly engage the natural casing to impede the longitudinal movement of the natural casing on the stuffing tube.
- 25 4. The method of claim 1 wherein a rotatable linking assembly is located downstream of the discharge end of the stuffing tube to link the natural casing filled with the meat emulsion and to impede the longitudinal movement of natural casing from the stuffing tube.
- 30 5. The method of claim 1 wherein a meat pump is employed to pump meat emulsion through the stuffing tube, wherein the forward end of the stuffing tube extends through a hollow chuck, placing a resilient brake element in the chuck around the stuffing tube to

yieldingly engage the natural casing to impede the longitudinal movement of the natural casing on the stuffing tube, wherein a rotatable linking assembly is located downstream of the discharge end of the stuffing tube to link the natural casing filled with the meat

emulsion and to impede the longitudinal movement of natural casing from the stuffing tube.

6. The method of claim 22 wherein a thrust collar is slidably mounted on the stuffing tube behind the natural casing, intermittently pushing the thrust collar against the casing insufficiently to create squeezing or compression pressure thereon but to facilitate the normal forward movement of the casing on the stuffing tube beyond the normal movement of the casing caused by the energy of the emulsion entering the casing.
7. A method for filling a natural hollow elongated casing with a meat emulsion, comprising, providing a casing filling station including a stuffing tube for supporting the casing to be filled with meat emulsion, providing a casing hopper adjacent the casing filling station to serve as a reservoir for a plurality of shirred artificial casings for delivery of shirred artificial casings for mounting on the stuffing tube, and moving the casing hopper away from its position adjacent the casing filling station when natural casings are placed on a stuffing tube in the casing filling station.
8. The method of claim 7 wherein a PLC is provided and senses when the casing hopper is in its position adjacent the casing filling station to thereupon control the longitudinal movement of the stuffing tube, to maintain the stuffing tube in a non-automatic extension mode, to hold a follower connected to the stuffing tube in a retracted position, and to maintain the casing hopper in its position adjacent the casing filling station.
9. The method of claim 8 wherein a natural casing is placed on the stuffing tube with the stuffing tube being in a partially retracted position to locate a discharge end of the stuffing tube upstream of the casing filling station; actuating the PLC to cause the stuffing tube to extend through a chuck, and to cause a meat pump to start pumping meat through the stuffing tube when the position of the stuffing tube through the chuck is sensed, and to start the rotation of the chuck and the stuffing tube, and to start the operation of linking chains and a conveyor located downstream from the casing filling station; manually

advancing the follower and sensing its arrival at a position adjacent a twister mechanism containing the chuck, and causing the PLC to stop the operation of the casing filling station.

5 10. A machine for filling meat emulsion into elongated natural or artificial casings, comprising, a casing filling station including a stuffing tube for supporting a casing to be filled with meat emulsion, a casing hopper to serve as a reservoir for a plurality of shirred artificial casings mounted on the machine adjacent the casing filling station for delivery of shirred artificial casings for mounting on the stuffing tube, and means on the machine for
10 moving the casing hopper away from its position adjacent the casing filling station when natural casings are placed on a stuffing tube in the casing filling station.

11. The machine of claim 10 wherein the means for moving the casing hopper includes means for pivoting the casing hopper away from the casing filling station.

15 12. The machine of claim 10 wherein the means for moving the casing hopper includes means for raising the casing hopper, pivoting the casing hopper, and thence lowering the casing hopper for moving the casing hopper away from the casing filling station.

20 13. The machine of claim 10 wherein the stuffing tube is longitudinally movably mounted on the machine, and means is associated with the stuffing tube to permit adjustment of its longitudinal movement.

25 14. The machine of claim 10 wherein the adjustment of the longitudinal movement of the stuffing tube is comprised of a removable hard stop, or a sensor actuated pneumatic control means.

30 15. The machine of claim 10 wherein at least one sensor is located in the machine to detect when the casing hopper is in its position adjacent the casing filling station; the sensor being operatively connected to a PLC to control longitudinal movement of the stuffing tube and to maintain the stuffing tube in a non-automatic extension mode, to hold

a follower connected to the stuffing tube in a retracted position, and to maintain the casing hopper in its position adjacent the casing filling station.

16. The machine of claim 15 wherein a natural casing is placed on the stuffing tube with the stuffing tube in a partially retracted position and with a discharge end being upstream of the casing filling station; the PLC upon being actuated is adapted to cause the stuffing tube to extend through a chuck, and to cause a meat pump to start pumping meat through the stuffing tube when the position of the stuffing tube through the chuck is sensed, and to start the rotation of the chuck and the stuffing tube, and to start the operation of linking chains and a conveyor located downstream from the casing filling station; a sensor on the machine adjacent a twister mechanism containing the chuck to detect the manual advancement of the follower in the proximity of the sensor to send a signal to the PLC to stop the operation of the casing filling station.
17. A sausage machine for filling natural casings which has a meat stuffing horn for receiving a hollow natural casing with a thrust collar slidably mounted on the stuffing tube for pushing a natural casing longitudinally on the stuffing tube.
18. The method of claim 1 wherein the thrust collar is intermittently manually pushed against the casing.
19. The machine of claim 10 wherein the means for moving the casing hopper includes means for horizontally pivoting the casing hopper away from the casing filling station.
20. The machine of claim 10 wherein the means for moving the casing hopper includes means for slidably moving the casing hopper away from the casing filling station.
21. The machine of claim 10 wherein the means for moving the casing hopper includes means for pivoting the casing hopper 180° away from the casing filling station.

22. A method for filling a natural hollow elongated casing with a meat emulsion, comprising, placing a natural casing on an elongated meat emulsion stuffing tube having a meat emulsion discharge end, closing an extended end of the natural casing over the discharge end of the stuffing tube so that meat emulsion exiting the discharge end will push
5 the natural casing longitudinally by pumping meat emulsion through the stuffing tube for expansive discharge into the natural casing at a sufficient volume and velocity to provide the primary energy within the natural casing to move the natural casing forwardly off of the discharge end of the stuffing tube, wherein the forward end of the stuffing tube extends through a hollow chuck, and placing a resilient brake element in the chuck around the
10 stuffing tube to yieldingly engage the natural casing to impede the longitudinal movement of the natural casing on the stuffing tube.

23. A machine for filling meat emulsion into elongated natural or artificial casings, comprising, a casing filling station including a stuffing tube for supporting a casing to be
15 filled with meat emulsion, a casing hopper to serve as a reservoir for a plurality of shirred artificial casings mounted on the machine adjacent the casing filling station for delivery of shirred artificial casings for mounting on the stuffing tube, means on the machine for moving the casing hopper away from its position adjacent the casing filling station when natural casings are placed on a stuffing tube in the casing filling station, wherein the
20 forward end of the stuffing tube extends through a hollow chuck, and a resilient brake element in the chuck around the stuffing tube to yieldingly engage the natural casing to impede the longitudinal movement of the natural casing on the stuffing tube. *resilient brake*

24. A machine for filling meat emulsion into elongated natural or artificial casings, comprising, a casing filling station including a stuffing tube for supporting a casing to be
25 filled with meat emulsion, a casing hopper to serve as a reservoir for a plurality of shirred artificial casings mounted on the machine adjacent the casing filling station for delivery of shirred artificial casings for mounting on the stuffing tube, means on the machine for moving the casing hopper away from its position adjacent the casing filling station when
30 natural casings are placed on a stuffing tube in the casing filling station, and a thrust collar slidably mounted on the stuffing tube behind the natural casing for intermittent pushing against the casing insufficiently to create squeezing or compression pressure thereon but to *thrust collar*

facilitate the normal forward movement of the casing on the stuffing tube beyond the normal movement of the casing caused by the energy of the emulsion entering the casing.